



Empowered lives.  
Resilient nations.

**WEST BENGAL MEDICAL SERVICES CORPORATION LIMITED**  
Through  
**United Nations Development Programme, New Delhi.**

**Invitation to Bid (ITB)**

**SUPPLY OF CARDIOLOGY EQUIPMENT FOR GANDHI MEMORIAL HOSPITAL,  
KALYANI, NADIA, GOVERNMENT OF WEST BENGAL**

**ITB: UNDP-WBMSC-04-2014**

**Amendment-III, dated 27 March 2014**

The following amendments are hereby made to the Bid document for the *Supply of CARDIOLOGY EQUIPMENT FOR GANDHI MEMORIAL HOSPITAL, KALYANI, NADIA, GOVERNMENT OF WEST BENGAL*, with reference to above ITB:

<b>Reference:</b>	<b>Wherever appearing in the bid document, the date, time and venue for receiving / opening of bids shall be read as:</b>
<b>Last Date, Time and Place of Receiving of Bids</b>	<b>1300 Hrs. (IST) on April 09, 2014</b> at United Nations Development Programme (UNDP), 55, Lodhi Estate, New Delhi-110003.
<b>Date, Time and Place of Bid Opening</b>	<b>1430 Hrs. (IST) on April 09, 2014</b> at United Nations Development Programme (UNDP), 55, Lodhi Estate, New Delhi-110003.

Under Instruction to Bidders, Data Sheet, the following modifications are made:-

DS No.	Cross Ref. to Instructions	Data	Specific Instructions / Requirements
8	C.21.1	Period of Bid Validity commencing on the submission date	<input checked="" type="checkbox"/> <b>90 days</b>
9	B.9.5 C.15.4 b)	Bid Security	<input checked="" type="checkbox"/> Required <b>Amount:</b> Pl. refer Section 3a for details of bid security amount per Schedule - Schedule of Requirements and Technical Specifications

10	B.9.5	Acceptable forms of Bid Security <sup>1</sup>	<input checked="" type="checkbox"/> Bank Guarantee (See Section 8 for template) <input checked="" type="checkbox"/> Any Bank-issued Check /Demand Draft / Cashier's Check / Certified Check ( <b>in favour of UNDP, New Delhi</b> )
11	B.9.5 C.15.4 a)	Validity of Bid Security	<b>90 days from the last day of Bid submission.</b> Bid Security of unsuccessful Bidders shall be returned.
15	C.17 C.17.2	Preferred Currency of Bid and Method for Currency conversion	<input checked="" type="checkbox"/> Local Currency (or) any freely convertible currency <i>Reference date for determining UN Operational Exchange Rate : <b>Bid Opening Date</b></i>

**Section 3a - Schedule of Requirements and Technical Specifications are hereby replaced as in Annexure below of this Amendment.**

**Under Special Terms and Conditions for Goods, Clause GT&C 23, Payment Terms, is amended.**

**Section 7, Price Schedule Form, is amended.**

**All other terms and conditions of the bid document, except as amended herein above, remain unaltered.**

United Nations Development Programme,  
55, Lodhi Estate, New Delhi – 110 003.  
Tel: 91 11 2462 8877  
Email : [procurement.dsc@undp.org](mailto:procurement.dsc@undp.org)

---

<sup>1</sup> Surety bonds or other instruments issued by non-bank Financial Institutions are least preferred by UNDP. Unless stated otherwise, they shall be considered unacceptable to UNDP.

## Section 3a: Schedule of Requirements and Technical Specifications

### 1. List of Goods and Consignee-wise Distribution

Sch. No.	Description	Quantity	Bid Security	Consignee
1	Cine Angiography Machine	1	INR 12,00,000 / USD 19,500	Gandhi Memorial Hospital, Kalyani, Nadia, Govt. of West Bengal
2	Echocardiography & Colour Doppler Machine	1	INR 40,000 / USD 650	
3	Holter Monitoring System	1	INR 20,000 / USD 325	
4	Ventilator (Digital)	1	INR 25,000 / USD 400	
5	TMT (Digital)	1	INR 20,000 / USD 325	

### 2. Delivery & Completion Schedule: (For Schedules 2 to 5)

- i. **Delivery to Consignee** (see Consignee Distribution List above) **within 60 days from the date of issue of the Purchase Order/Contract.**
- ii. **Installation, Training & Commissioning:**

Satisfactory installation, training & commissioning as per the Consignee Distribution List (see Consignee Distribution List above) within 15 days from the respective dates of delivery of the goods (one week extra will be given for site inspection)

#### (For Schedule No. 1):

- (i) Site Modification with interiors: Within 60 days after handing over the site for modification to the successful bidder.
- (ii) The complete turnkey work including installation / commissioning of all turnkey items should be completed within 90 days from the date of issue of Purchase Order/ Contract.

*Note: While installation at the designated site/location and commissioning will be the responsibility of the supplier, basic readiness of the site enabling such installation will be the responsibility of the consignee*

### Terms of Delivery

DDP final destination as per Consignee Distribution List provided in List of Goods (also see note below).

**NOTE:**

- a) The responsibility of obtaining all required documents, including Custom clearance (if applicable), Road Permits etc. is of the Supplier.
- b) Installation of Medical Equipment will be at the Medical Colleges as per the Consignee Distribution List.
- c) Training on Medical Equipment at Medical Colleges as per the Consignee Distribution List; however with the prior approval of the consignee(s), training for more than one centre can be organized together at one location.
- d) The Consignee Receipt Certificate (CRC) will be issued to the Supplier within 72 hours of the delivery at the Consignee address.
- e) Liquidated Damages (LD) will be calculated separately on: (1) delay in the delivery of the Goods to the consignees; and (2) delay in installation, training & commissioning, attributable to the supplier, and not for reasons not attributable to the Supplier.
- f) With regard to charge of liquidated damages (LD) for delay in delivery of goods, the onus of proof will be on the supplier for establishing that delays were not due to reasons attributable to him, whereas in post-delivery installation in case of delay, assumption of non-readiness of site at consignee locations shall ordinarily prevail unless there is specific evidence /information/material to the contrary.

**Note1: The following points with regard to consumables should be noted while bidding for any of the schedules:-**

1. Reusable consumables should last during the warranty period.
2. In case any additional reusable consumables are required during the warranty period those will be supplied free of charge by the supplier.
3. The life expectancy of the reusable consumable is expected to be of at least one year from the date of purchase of the same. The reusable consumables will be procured at the prices accepted as per the contract.

**Note2: Applicable for all the schedules:**

- 1) Any reference to brand of technology/ product, in case it occurs anywhere in the technical specification is purely for indicative/illustrative purposes and should be read as including its equivalent.
- 2) The product quality requirement in this ICB will be CE ("Conformité Européene") or US FDA or BIS.
- 3) Unless specified otherwise in the Technical Specifications, all offers should include UPS unit or battery backup of at least one hour, as the case may be, with each equipment.
- 4) Offered product catalogue to be attached in original (2 in nos.) with each bid.
- 5) Attach valid quality certification document(s); no self-certifications admissible.
- 6) Quality Management System in conformity with ISO 9001:2008 where specified;
- 7) Product quality standard (CE/FDA/BIS) to be supported by authentic documents; Warranty, its scope and service facilities to be clearly indicated in the documents.
- 8) **Company should have local service facility.** Bidders who don't have service facility in West Bengal will have to set up service centre in West Bengal and submit proper documentation in support of the same within 15 days of receipt of Award of Contract (AOC). The service provider should have the necessary equipment recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
- 9) **One CD/DVD of demonstration video must be attached with the submission of bid.**
- 10) One CD/DVD of demonstration video must be supplied with the equipment for end users.
- 11) **Supplier should provide onsite training, monitor effectiveness of training and take corrective actions once in a fortnight during the first two quarters after the installation of the equipment.**

# **Technical Specifications**

## **Schedule -1**

### **CINE ANGIOGRAPHY MACHINE**

#### **(Flat panel single plane Cardiac Cath-Lab along with accessories)**

Latest state of the art, single plane floor / ceiling mounted C-arm / G-arm Cardiovascular Angiography system with flat detector technology digital imaging system for diagnostic procedures and interventional cardiovascular procedures, valvuloplasty and vascular Angiography, online DSA and cardiovascular electrophysiology.

1. C-Arm / G-Arm Multi-directional floor / ceiling mounted
  - 1.1 All movements should be motorised with C-arm angulations of minimum RAO/LAO + 105 deg. / -105 deg. CRAN/CAUD +45 deg. At head end position with 20 deg. / sec. or more speed for LAO/RAO and 15 deg. / sec. or more speed for CRAN/CAUD.
  - 1.2 The system for user defined 50 programmed position of the C-arm.
  - 1.3 Manual / motorised parking of C-Arm in case of catastrophe for resuscitating the patient.
  - 1.4 Motorised peripheral position for peripheral and vascular intervention should be available it should be possible to position the C-arm on the left side as well as on the right side of the patient.
  - 1.5 The C-arm should have auto collision protection with patient monitors and the table.
  - 1.6 It should be possible to have head to toe coverage without patient repositioning.
2. Table
  - 2.1 Floating / floor mounted with carbon fibre table top with easy patient transport capability. Table length should be 300 cm or more with fluoroscopic coverage of at least 125 cm or more, longitudinal travel should be 120 cm or more.
  - 2.2 Accessories for table should include head fixing aids, mattress, radiolucent carbon fibre arm support, catheterisation arm support for radial angiography, drip stand, peripheral filter set.
  - 2.3 Maximum patient weight = 150Kgs or higher with additional weight for at least 100 Kgs during resuscitation.
  - 2.4 It should have rotating facility.
3. X-ray Generator
  - 3.1 100 KW or more compatible with high resolution imaging.
4. X-ray Tube
  - 4.1 X-ray tube should be with fine focal spot (small & large) with high cooling rate to ensure continuous operation, capable of pulsed

- fluoroscopy on both focal spots. The large focus power output should be 80KW or more. The Pulse fluoroscopy should be offered with pulse rate of 10 frames / sec. to 30 frames /sec.
- 4.2 The x-ray tube should have anode heat storage capacity of at least 2.4 MHU or more to run continuously for 6-8 hours without shutting off.
5. Radiation protection
- 5.1 The system should have integrated computer controlled (preferably automatic) X-ray beam filtering with copper filters of various size from 0.2mm to 0.9 mm. Please list the special filters available.
- 5.2 The system should have positioning of collimator blades without radiation.
- 5.3 The system should have monitoring and display of X-ray dose during the patient examination. It should be possible to create a DICOM based dose report of the patient.
- 5.4 System should meet all National & International safety standards & comply with BARC & AERB guidelines.
6. Digital Imaging System
- 6.1 A flat detector with diagonal size of at least 24 cm. Digital system with acquisition and processing in 1024x1024 matrix at 25/30 fps with 10/12/14 bit digitization.
- 6.2 Image storage capacity of at least 50,000 images in 1024x1024 matrix at 10/12/14 bits on the main system disk.
- 6.3 System should have capability of ECG display on the live image monitor and archive the ECG display along with angio images on CD, during the acquisition.
- 6.4 System should have on-line & off-line validated coronary analysis and ventricle analysis program. The software should have auto calibration facility for stenosis measurement with geometrical and densitometry calculations. The analysis should be possible from table side in the examination room and from the control room.
- 6.5 The System should have full table side control operation with complete acquisition and post processing capabilities.
- 6.6 The System should have on-line multi-segmented DSA capabilities in 1024x1024 matrix with acquisition frame rate of 0.5 frame / sec. to 7.5 frames / sec.
- 6.7 The System should have facility for storage of fluoro loop scene of at least 10 seconds.
- 6.8 The system should be quoted with 3D modelling / analysis of coronary arteries.
- 6.9 The latest complete software and hardware for visualizing stent with extra high resolution from table side control.
- 6.10 It should be possible to overlay live fluoro image on reference image on live monitor with fade in fade out.
- 6.11 Angle and distance measurement facility should be available.
- 6.12 It should have parallel line display cum medical grade monitor in doctors' rooms.

## 7. Monitors / Display

- 7.1 The monitor display system in examination room should be ceiling suspended and it should be possible to position it on the left or right side of patient table. The monitor suspension system should have facility to place 6 monitors. The system should have six medical grade high resolution TFT/LCD at least 18” monitors to display live and reference images, one for patient hemodynamic monitoring, one for EP tracing, one for 3D image display and one for IVUS imaging.
- 7.2 Two high resolution TFT/LCD monitors for post-processing and reporting in the control room.
- 7.3 One colour monitor for 3D image viewing / processing in control room.

## 8. Digital Archiving

- 8.1 US FDA approved system for recording images on DVD/CD-R with DICOM viewer in DICOM 3 format.
- 8.2 Image transfer from digital system in background mode without affecting the system operation.
- 8.3 USB interface to copy images to memory disk / external hard disk.

## 9. 3D Acquisition and Cross-sectional Imaging

The 3D acquisition should offer:

- 9.1 3D reconstruction and visualization in real time of volume in volume rendering technique (VRT). System should have 3D along with the required software and hardware for 3D reconstruction.
- 9.2 MPR & MIP.
- 9.3 It should be possible to create 3D image of left atrium of heart. It should be possible to overlay line fluoro image on this 3D image of left atrium for catheter guidance in EP procedure.
- 9.4 The facility should offer auto segmentation of ventricles / vessels of the entire heart (especially the left atrium with visualization of the pulmonary veins) in automatically performed one step.

## 10. CATHLAB RECORDING SYSTEM

- 10.1 The following feature should be available in the recorder
  - 12 Lead ECG amplifier with floating input.
  - At least 2 pressures with floating inputs.
  - Time and amplitude measurement with electronic calipers.
  - Laser printer with minimum 16 MB memory with minimum 1200 dpi.
- 10.2 The patient connection box should be easy to install at the patient table in the examination room.
- 10.3 18” colour wave form monitor with programmable layout and digital monitoring readout – Two.
- 10.4 A 18” remote colour wave form monitor, to be mounted in the examination room.

- 10.5 ECG cables and reusable pressure transducers – 2 each.
- 10.6 Software should be provided for off line hemodynamic calculations such as cardiac output gradients and shunt estimations.

**11. State of art Intra-aortic balloon pump (IABP) system:**

- A. Pneumatics drive system : Compressor; Counter pulsation rate : 40-200 pulsations per minute.
- B. In automatic mode of operation user should be in control of the deflation point. In automatic mode advance software should automatically adapt the timings for various rhythms and its variations, without any user intervention.
- C. Should be able to trigger on 7mm Hg of Pulse pressure when used in pressure trigger mode.
- D. On screen indication of standby time and should give alarm after 15-30 minutes, to draw user's attention on the system being on standby.
- E. Should have Peripheral Vascular Doppler for detecting limb ischemia, which is attached to the main equipment.

Each system should be supplied with the following:

- (i) ECG cable with Refillable Helium cylinder compatible with the IABP system. Quantity : 3 nos.
- (ii) Intra-Aortic Balloon Catheter for Adults, Size: 40 cc Qty : 2 nos.
- (iii) Intra-Aortic Balloon Catheter for Adults, Size: 30 cc Qty : 2 nos.
- (iv) Intra-Aortic Balloon Catheter for Pediatrics, Size: 12 cc Qty : 2 nos.
- (v) Intra-Aortic Balloon Catheter for Pediatrics, Size: 10 cc Qty : 2 nos.
- (vi) Reusable Invasive Blood pressure transducer system with pressure flush device system ; Quantity : 2 nos.

**12. State of art, Intra Vascular Ultrasound (IVUS) machine with following technical specifications:**

- A. Should be windows based IVUS imaging system capable of accepting phased array transducer technology (20 MHz).
- B. Should be able to use a common catheter for coronary as well as few peripheral applications like Carotid, Renal etc.
- C. Should have DICOM storage to CD-R and PACS network compatible.
- D. Hard disk storage space should be sufficient to store at least 20 clinical case studies and 100 patient data (please specify CPU features).
- E. Should have biophysical inputs : ECG
- F. Should be capable of recording minimum of 5300 frames in a single loop so as to scan an entire length of a long artery with full editing capability.
- G. Online color distinctions of plaque composition with percentage of different tissues.
- H. Accessories
  - Reusable pull-back device
  - Color printer
  - Phased array coronary IVUS catheters – 8 nos.
  - Peripheral IVUS catheter 10 Mhz – 1 no.
  - Peripheral IVUS catheter 20 Mhz – 1no.



Optional

- (a) In line display, automatic border detection
- (b) Special s/w for clear visualization of blood flow, improved detection of blood flow, dissections, stent appositions.
- (c) Should be upgradable to OCT.

**13.** Fractional Flow Reserve (FFR) machine with following technical specifications:

- A. Console to determine FFR with sensor based wire and able to accept arterial pressure from cath lab transducer system.
- B. Should be able to assess FFR and CFR with same equipment.
- C. Display both real time pressure and mean pressure value.
- D. Screen window should display real time FFR in both numerical and graphical form.
- E. Should have upgraded software to calculate in real time both FFR and CFR/IMR with help of latest technology Doppler / temperature based measurement.
- F. Should supply 10 numbers pressure wire with the equipment.
- G. (Intra Vascular Ultrasound (INUS) & Fractional Flow Reserve (FFR) machine separately or in combination)

**14.** ELECTROPHYSIOLOGY LABORATORY SYSTEM

Components of an EP lab

- (i) EP recording system
- (ii) Computerised stimulator
- (iii) RF ablator generator

Note: all the three components should be from a single manufacturer.

EP Recording System:

- 1. Minimum of 100 Intracardiac channels.
- 2. Digital amplifier with minimum 32-bit A/D converter with 2Khz resolution
- 3. Review software which can be loaded on any laptop.
- 4. Should be CE/USFDA/Indian regulatory body approved.
- 5. Should have :
  - Holter window
  - 3 LCD monitors with 1600x1200 resolution (in addition to hemodynamic recorder).
  - 12 lead surface ECG channels with 4 pressure channels, 4 analog inputs.
  - Dual imaging window to allow saving and retrieval of still & avi fluoro images with corresponding electro grams.
- 6. Should be able to interface with all available generators in the market including RF and Cryo.
- 7. Should be compatible with all 3D mapping system like Ensite and Carto.
- 8. Upgradable modular design.

### **EP Stimulator**

- Standalone computerised stimulator with 14” LCD facility.
- Should have a minimum of 9 pre-programmed protocols and 10 user defined protocol and up to 6 extra stimuli.

### **RF Ablator Generator**

- Power – minimum 130 watt output.
- Compatibility – Thermistor & Thermocouple.
- Should have facility of sequential ablation of up to 4 electrodes.
- Compatibility with irrigation pump

### **Accessories for Electrophysiology Laboratory System : Essential**

1. 21” two high resolution slim LCD monitors.
2. Laser jet printer.
3. Cart with castor wheels.

(The company should arrange for adequate training of the technician)

### **15. HEMOXIMETER**

Hemoximeter for measuring Hb and oxygen saturation during cardiac catheterization complete with all accessories like rinse solution, calibration solution etc. for at least one year.

### **16. Defibrillator cum monitor**

Three of approved and reputed make – Two of these for the intervention room and one for the recovery room. One of them should have external pacing facility.

### **17. ACT machine – One number with one set cartridge**

### **18. Suction apparatus mounted on stand – One**

### **19. Pulse Oxymeter portable – One**

### **20. Anesthesia Machine – One**

### **21. Power Supply**

- A. Power input to be 220-240VAC (single phase), / 400-440V (3 phase) / 50Hz as appropriate fitted with Indian plug.
- B. Reset table over current breaker shall be fitted for protection.
- C. Online UPS of suitable rating conforming to shall be supplied for the entire Cath-lab system including X-ray generation.
- D. The power requirements involve laying a 125 KVA cable from the substation to the Cath-lab and making a Bus-Bar and a power distribution board and this would be done by the supplier as a turnkey project under the supervision of the support staff e.g. PWD (Elect.).

## **22. SITE MODIFICATION**

- a. The necessary site modifications with interiors will have to be done by the supplier.
- b. Six steel cupboards to store linen, catheter storage, consumables, medicines should be provided.
- c. Facility for storage of CDs & DVDs and Cath-lab hard wires to be provided.
- d. Whole Cath-lab complex should be centrally air conditioned.
- e. Other minor issues like voltage fluctuations, cooling, pest control and rodent control is to be taken care of by the cath lab supplier.
- f. Site lay out / plan to be discussed with department and lay out/plan copy approved by department to be used.
- g. Supplier has to state the schedule for site modification and installation of cath-lab system and all accessories.
- h. Approximate area available for cath lab complex (where installation of two cath-lab systems will be done) is 2400 sq. ft.

## **23. Warranty**

- a. Comprehensive warranty for 5 years for the complete system and third party item including x-ray tube, IVUS, FFR machine, IABP, electrophysiology system, intra-aortic balloon pump (IABP) system and other supplied accessories like ACT machine, high pressure injector, hemoximeter, anaesthesia machine etc.
- b. All steps to be taken to maintain 95% uptime time of the equipment, failing which penalty clause would be imposed.

## **24. Standards, Safety and Training**

- A. Cath-lab and each accessory should be USFDA / CE **and** Indian regulatory body approved product.
- B. Electrical safety conforms to standards for electrical safety IEC-60601-1 general requirements.
- C. Manufacturer should have ISO certification for quality standards.
- D. Shall comply with AERB and BARC guidelines.

## **25. Documentation**

- A. User manual in English.
- B. Service manual in English.
- C. List of important spare parts and accessories with their part number and costing.
- D. Certificate of calibration and inspection from the factory.
- E. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
- F. List of equipment available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
- G. User list and performance certificate of at least 5 Cath-lab installation in the past 5 years from government institutions should be submitted along with the techno-commercial bid.

**26. Other requirements**

- A. Model should be latest generation.
- B. Should have local service facility.
- C. Comprehensive warranty of main cath-lab system and third party items for **5** years and AMC/CMC of the main cath-lab system and third party items for next **5** years to be provided by the cath-lab unit supplier.
- D. Availability of spare parts to be ensured for minimum 10 years period.
- E. The company should provide LAN facility that will provide online as well as off line analysis of cath-lab procedure from other cath-lab and from office rooms of three consultants.
- F. Demonstration is must before approval and also working demonstration after installation.

**Annexure-I**  
**SITE MODIFICATION TURNKEY PROJECT**  
**FLAT PANEL SINGLE PLANE CARDIAC CATH-LAB ALONG WITH**  
**ACCESSORIES**

1. Supplier would undertake a turnkey project for site modification and installation of cath-lab as per AERB/BARC regulations after AERB/BARC and / or other concerned authority's approval.

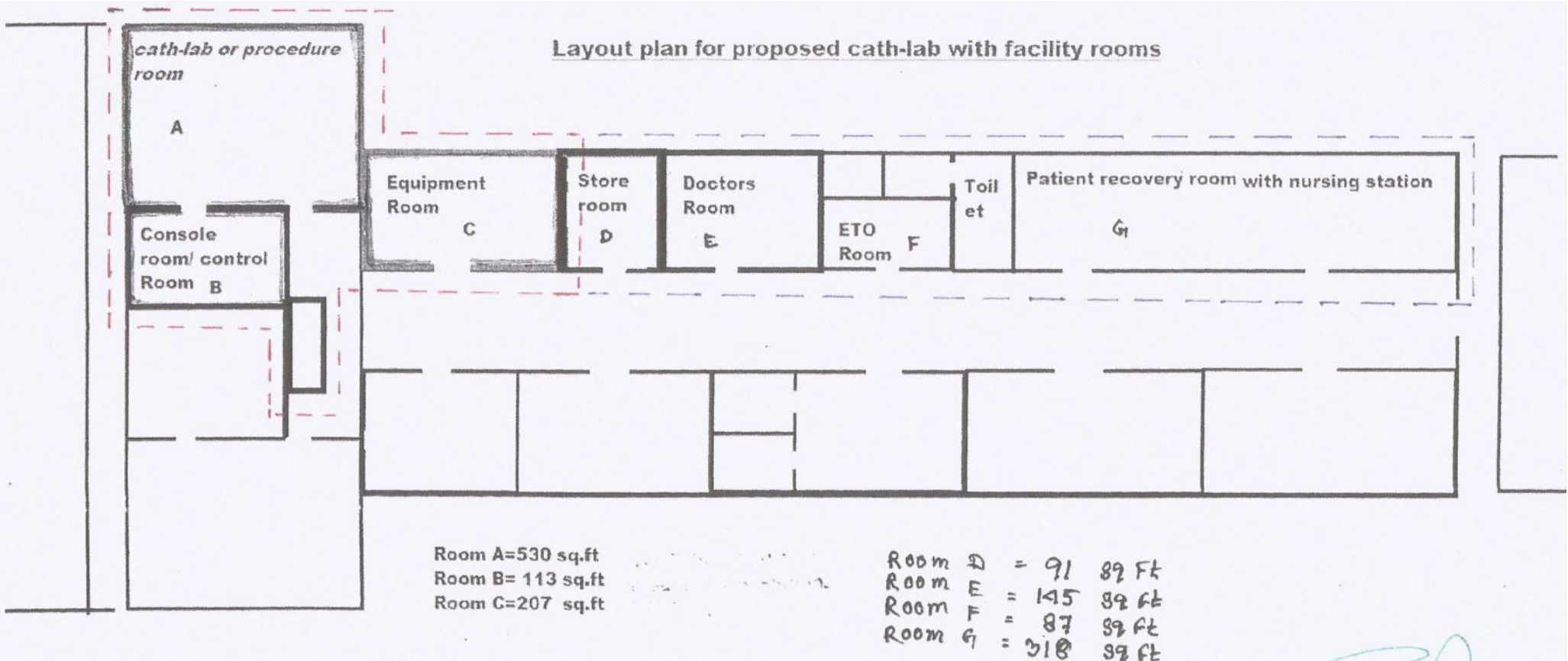
A typical layout plan (with dimensions) showing the placement of all specified hardware, including camera, consoles, data processing workstation, collimator, cart(s) and any imaging table(s) and rails along with details of computer furniture, conduiting and earthing etc. would have to be provided to the hospital / appropriate authority and approval taken before starting the modifications / renovations. (Please see LAYOUT SITE PLAN below)

The total area to be prepared by the selected bidder is 850 sq.ft. as demarcated in red lines. The selected bidder will have to prepare Gantry Room / Procedure Room ("A"), Console Room ("C") as shown in the layout diagram. The rest area demarcated in blue lines in the diagram would be prepared by the hospital authority at their own cost.

**Civil work: In the civil work following works are to be undertaken:**

2. Modifications / renovations in the existing rooms will be done by the vendor as shown in the layout plan after approval by the Atomic Energy Regulatory Board (AERB).
3. The walls of whole Cath-lab complex should be finished acrylic / plastic emulsion and should be finished with tiles (of Kajaria / Johnson / Naveen) up to five feet height.
4. The flooring in the Cath-lab complex should be as per AERB regulations. Flooring in all rooms and corridor shall be of vitrified tiles of 60x60 cm size or other close appropriate size of reputed make like Kajaria / Johnson / Naveen.
5. Whole area of Cath-lab complex as in the layout plan approved by the AERB shall be finished with fire resistant zypcian false ceiling (material used should be of ISI/BIS mark).
6. All the doors should be provided with necessary fittings with hydraulic type door closures (DORMA/ reputed make) and with mortised locks of Godrej / reputed make. Main door of the Cath-lab complex in the corridor shall be in glass aluminium with adequate thickness of glass with wood work wherever required.
7. Lead glass window of adequate size will be fixed as per AERB guidelines in the console room. Proper signage both external and internal.

Layout plan for proposed cath-lab with facility rooms



**Plumbing work has to be carried out as per requirement for scrub area and other areas.**

8. The pipes and accessories should be of centrifugally cast Iron of ISI make and the connection of existing main hole in the public health shafts shall be done. All water pipes shall be galvanized iron of TATA equivalent make and filling shall be SUW/UF/UNIK make. The grating shall be chrome plated. All CP fittings shall be EBONY/Jaguar/ESSCO.

**Electrical Work:** The firm is required to specify load requirement i.e. required for the unit, the air conditioning, room lighting and for the accessories, if any. The electrical works / accessories should be conforming to ISI/BIS standards and material should be ISI/BSI mark. The electrical works should have:

9. Minimum two separate earthing with copper plate is to be provided for the main equipment and air-conditioning equipment as per equipment requirements. The use of earth leakage circuit breaker will be required.
10. A distribution panel of standard make and appropriate capacity is to be provided. The load shall be provided by the hospital. However, from the substation of the hospital to the distribution panel, cable of appropriate size will have to be provided and fixed by the vendor.
11. The switch gears (MCBs/ACBs/MCCBs) should be of Siemens / Hager (L&T) make.
12. L.T. distribution board for MCBs etc. should be of Siemens/Hager (L&T) make.
13. Electrical wires should be of copper of different capacity as per the load and should be of Finolex / Havells / Polycab / L&T/ Lapp Kabel make.
14. Telephone wiring cables should be of Finolex / havells/ polycab make. Telephones to be provided in all rooms with EPBX system having control in office.
15. Modular range switches / sockets of MK/North West should be provided and fixed as per requirement.
16. General lights should be of mirror optic reflector type of Philips / Wipro / GE/Crompton make. Light dimmers (down lighters) should also be fixed in the equipment room.
17. Ceiling fans / wall fans to be provided in corridor and in all rooms.
18. Steel conduit of BEC/AKG makes and conduit accessories of RAMA / Fitwell make.
19. **Air conditioning:** Split air conditions of reputed make. Blue star/Carrier/LG / Samsung/ General to be provided by the vendor in whole complex as per requirements (to maintain appropriate temperature in the main equipment room & other rooms) and as per regulations of AERB. Standby additional split air condition(s) of appropriate strength / capacity (tonnage) to be fixed in the main equipment room.  
Hygrometer 3 numbers to be provided.  
In-built or external De Humidifier in equipment, console and examination rooms to be provided as per room layout.

**Fire Protection**

20. Non water based fire protection is to be integrated as per requirement. Fire extinguishers of appropriate types conforming to ISI/BIS mark should be fixed in different rooms as per requirement. Heat detectors / hooters / photoelectric /smoke detectors of ISI/BIS mark shall be provided in all the rooms and corridors as per requirements. In case the expiry date of fire extinguishers is before the completion of 5 years comprehensive warranty period, extra set(s) of fire extinguishers will be supplied by the vendor till the completion of the 5 years comprehensive warranty period.

**The vendor to also install the following:**

21. Audio visual music systems for patient waiting areas.
22. Ultrasonic pest & insect repellents to be provided and installed.
23. Music and public address system for calling / informing the patients in the waiting areas.
24. Storage cupboards made of wood / ply board to be fixed in different rooms as per requirement stated by department at time of installation.
25. As per requirement furniture and fixtures for all the area including chairs of Godrej / Durian reputed make should be provided.
26. Furniture and other items, mentioned as of reputed make, will need approval of the department.
27. **Defect liability:** The works shall be guaranteed for a minimum period of **5** years from the date of commissioning against any defective material / workmanship. **The warranty and CMC of the air conditioners** will form part of the main equipment. **The turnkey work including installation / commissioning of all the turnkey items should be completed within 3 months.**
28. Certification to the effect that the work has been executed as per the specifications incorporated in the above document will be by the appropriate authority.

**UPS:** Suitable online UPS with 30 min. battery backup for complete Cath-Lab including cine and fluoroscopy. Emergency lighting should also be on UPS.

**ACCESSORIES** to be supplied:

- A. State of the art high pressure injector – one
- B. Ceiling suspended radiation protection – one no. ( as per international radiation protection system)
- C. Table mounted radiation protection - one no. ( as per international radiation protection system).
- D. Integrated two way communication system between control room and examination room.
- E. One laser network printer of high resolution ( at least 1200 dots per inch) with minimum 128MB memory and 1200 dpi should also be offered for high quality image printing.

**Environmental factors:**

- A. The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and relative humidity of 15-90%.
- B. Should meet general requirements of safety for electromagnetic compatibility.



- C.
  - 1. The chosen supplier would be asked to undertake a turnkey project wherein necessary civil work modifications like False ceiling, wall tiling, anti-static flooring and finish works should be provided by them under the supervision of the support staff e.g. CPWD (Civil) / Electrical etc.
  - 2. The supplier would also provide the scrub area and the catheter wash area.
  - 3. The supplier also would provide the necessary furniture like tables, computer chairs, cupboards, catheter hang wall mounts etc.
- D.
  - 1. Appropriate air-conditioning would be provided by the supplier and maintained throughout the warranty period of the cathlab.
  - 2. The entire cathlab including the air conditioning should be connected to the generator of the hospital.
- E. Proper shielding should have to be done by the supplier to minimize radiation leakage as per AERB and BARC regulations.

**Schedule – 2**  
**Echocardiography & Colour Doppler Machine**

**Echocardiography & Colour Doppler machine – one portable echocardiography machine with following specifications:**

- A. The system should have latest digital beam former technology with minimum 15,000 or more digital programmable channels for digital beam formation.
- B. It should feature a full range of capabilities, including, 2D imaging in fundamental and harmonic modes, M-mode, High frame rate color flow imaging, color Doppler velocity mode, pulsed wave spectral Doppler mode, continuous wave spectral Doppler mode, color Doppler energy (CDE) mode, (Power Amplitude Doppler), Vascular imaging, Contrast agent imaging, ECG trace, comprehensive measurements and calculations.
- C. The system should have minimum 15” flat panel display screen.
- D. It should provide clinical requirements like adult and pediatric transthoracic echo (TTE), trans oesophageal echo (TEE) vascular ultrasound, intra cardiac echo (ICE), DICOM network output option, advanced triggering option, Intima-Media Thickness (IMT) application.
- E. The system should offer exhaustive measurements and calculations in 2D, M-mode, color Doppler, PW and CW spectral Doppler modes, basic measurements and report calculations, comprehensive patient calculations report, on-screen ‘mini’ reports, complete or configured patient report, cardiac package, carotid package, arterial package, venous package.
- F. The system should provide following Transducers:  
2-4 MHz wideband phased array (adult Trans thoracic), 3-7 MHz wideband phased array (pediatric trans thoracic), 5-7 MHz wideband linear array (vascular), 2-4 MHz wideband curved array (abdominal) 3-6 MHz wideband phased array (adult trans esophageal) (micro-pin less (MP) connector) and intracardiac probe (8F ultrasound catheter, 10F ultrasound catheter).
- G. The system should have internal hard drive of 80 GB or more for image and data storage, storage of real-time dynamic clips, storage of frozen static images, DICOM format.
- H. The system should have isolated patient ECG connector, composite video output, VGA, connector for external keyboard, audio input, USB.
- I. Rechargeable battery for at least 45 minutes operation.
- J. Accessories to be supplied along with portable echocardiography machine:
- Adult probe: 1 no.
  - Paediatric probe: 1 no.
  - TEE probe : 1 no.
  - Vascular probe: 1 no.
  - Intracardiac probe (8F): 3 nos.
  - Printer (inkjet/laser): 1 no.
  - ECG cable: 1 no.
  - Inbuilt CD/DVD writer.
  - Voltage stabilizer : 1 no.
  - Thermal printer: 1 no.

- The unit should be of light weight and not more than 10 Kg.
- The entire unit should be mounted on a cart manufactured and supplied by the same equipment manufacturer.

Quality Certification: Valid CE/US FDA  
Warranty 2 years & CMC 5 years

### **Schedule - 3** **Holter Monitoring System**

Provide the Holter Analyzer(1) with following features.

1. Having Holder window with reference to time & QRS morphology
2. 3 Channel Arrhythmia analysis & statistics of different arthymias/Histogram facility
3. Full disclosure of EGC with different color coding for VE, SVE & PAUSES
4. Hourly count menu, Page scan, Mega scan
5. Templates editing to analyse VE, SVE, V-RUN, SV-RUN, PAUSE, ST, etc.
6. System should be capable of analyzing various arrhythmias like ventricular ectopics, supraventricular ectopics, ventricular tachycardia, ventricular fibrillation, supraventricular tachycardia, atrial fibrillation, sinus pause
7. Heart Rate Variability (HRV) (Time Domain,).
8. Pace Maker auto detection and analysis
9. Possible to have a unique 12 lead analysis with FCG CAD gram & ST/HR relationship analysis S-S.
10. 12-Lead ST scan
11. QT analysis with validation
12. Capable of identified Vector cardiography
13. To print ECG strips from any part of Holter recording with large & small square background just like ECG paper, bit to bit HR printing & R-R interval analysis
14. Capable of analyzing data from 3 Channel digital recorders
15. Possible for Electronic enrollment for CF flash Card
16. TWA alternans analysis
17. Color Printing

#### **Two Recorders with following Configuration**

1. 3-Channel Digital recorder with removable storage media such CF Card – 1 No.
2. Minimum of 64 MB CF Card – 1 No.
3. 10/12-Lead Cable – 1 No.
4. Recorder should be compatible with alkaline batteries

PC Configuration –

Pentium-4 with 256 MB RAM, 40 GB Hard disk, 19” -21” Monitor, flat panel digital two recorder & three channels, Colour Ink Jet Printer & UPS (minimum 30 minutes backup) & capable of increasing capacity of memory card.

Quality Certification : Valid CE/US FDA  
Warranty 2 years & CMC 5 years

**Schedule - 4**  
**Ventilator (Digital)**

**Specification of ICU Ventilator (Respiratory Ventilator – Digital)**

1. Should have facility for Invasive and Non-Invasive ventilation
2. Microprocessor Control Suitable for Pediatric and adult ventilation
3. Electromagnetically Compatible Hinged arm holder for holding the circuit
4. Should have inbuilt EtcO<sub>2</sub> facility with one set of paediatric and adult accessories.
5. Monitor to display wave form & monitored to value in a  $\pm 10$ " or more screen
6. Facility to Measure and display
  - a) Status indicator for ventilator mode
  - b) Battery indication
  - c) Pressure Vs time volume Vs time, flow Vs time 3 curves/waveforms simultaneously
  - d) Alarm setting
7. Automatic compliance and leakage compensation for circuit and ET Tube.
8. Should have following settings –
  - a) Tidal volume (Minimum at least 50ml, Maximum up to 2000ml)
  - b) Inspiratory Pressure (up to 80 cm of H<sub>2</sub>O)
  - c) Respiratory rate 4 to 80 bpm
  - d) Apnea back up rate
  - e) CPAP/PEEP
  - f) Pressure support
  - g) FiO<sub>2</sub>
  - h) Pause Time
  - i) Pressure &/or flow Trigger
  - j) Inspiratory flow up to 120 Lpm
9. Monitoring and Display of the following Parameters
  - a) Airway Pressure (Peak & Mean)
  - b) Tidal volume (Expired)
  - c) Minute volume (Expired)
  - d) Respiratory mechanics
  - e) Spontaneous Minute Volume
  - f) Total Frequency
  - g) FiO<sub>2</sub> dynamic
  - h) Intrinsic PEEP
  - i) Plateau Pressure
  - j) Resistance & Compliance
  - k) Use selector Alarms for all measured & monitored parameters

- l) Pressure Flow & Volume curves
10. Modes of Ventilation equipped with newer modes of ventilation:-
  - a) Assist / Control
  - b) Volume Control
  - c) Pressure Control
  - d) Pressure Support
  - e) SIMV with pressure support (Pressure and volume control)
  - f) PEEP
  - g) Inverse ratio Ventilation
  - h) Non-invasive ventilator – BIPAP, CPAP
  - i) Apnea Ventilation, User selectable, volume & pressure control
11. Should have built in safety alarms for Airway Pressure High & Low, Minute Volume, High & Low, Power Failure, Low Oxygen, High Respiratory Rate, Air Source in-operable
12. Should have inbuilt exhalation filter
13. Air source / Compressor should be of same company inbuilt/mounted with ventilator assembly
14. Should have compatibility with existing central pipe line in case of compressor.
15. Humidifier
  - a) Servo controlled heated Respiratory Humidifier
  - b) Temperature of delivered Gas on LED/LCD display
  - c) Temperature should be adjustable
  - d) Jar should be autoclavable
16. Quality Certification : Valid CE/US FDA
17. Demonstration of quoted model is must, preferable on site.
18. Nebulization assembly compatible with ventilator and circuit
19. Flow sensor – Should have life more than 1 year
20. Expiratory Unit – Life should be more than 3 years
21. Data storage facility for at least 24 hrs.
22. Internal rechargeable battery at least 60 min. backup for complete system including ventilator.
23. Should be autoclavable and reusable flow sensors and should be covered under warranty.
24. CMC for 5 years and Cost of consumables spares
25. Warranty 2 years from the date of installation
26. Standard Accessories along with:
  - a) Patient breathing circuit of silicone for Adult & Paediatric (reusable)
  - b) Non-invasive ventilator mask reusable for adult (3 sizes) and paediatric according to age – 4set each
  - c) ET tube cuff pressure monitor - 2 and HME filter – 10
  - d) Should have reusable autoclavable flow sensors having long life.

The battery backup system should be an independent unit that energizes all the hardware and incorporates in intelligent charging system that keeps long lasting battery, in addition to

providing all the information on its status. The software incorporated should be extremely reliable and intelligent to provide in first place safety and effective treatment to the patients. To achieve this goal it monitors all the main parameters, like pressure, flow, volume, inspiratory time, expiratory time, electrical energy, battery state and gases inlet pressure.

V-SIMV + PS

Synchronized Intermittent Mandatory Ventilation – Volume with Pressure Support

P – SIMV + PS

Synchronized Intermittent Mandatory Ventilation – Pressure with Pressure Support

CPAP/PS

Continuous Positive Airway Pressure with Pressure Support

DualPAP

Two Levels of CPAP + Pressure Support

The mode had to allow BIPAP and APRV according to the ventilation adjustments

Appropriate trolley should be provided

## **Schedule - 5** **TMT (Digital)**

### **Specification for Stress Test System Computerized Treadmill Test (Digital System – module based)**

1. Should be 12 lead display HR/BP display
2. Split Screen – For Max. ST-T changes & arrhythmia of specific lead
3. Analysis of ST/HR changes simultaneously with BP and arrhythmia
4. Display ST/HR relation graph
5. Annual maintenance contract
6. Data retrieval after stopping stress test
7. Low profile cushioned desk (standard) for patient comfort & safety
8. Prominent standard emergency stop button
9. User weight capacity 150kg.
10. Cushioned & reversible running desk

**11. Drive System**

Should be heavy-duty, 2.2HP AC inverter drive

208-240V, 50/60Hz, dedicated 15 amp services

110V, 50/60Hz, dedicated 20 amp services (optional)

**Speed Range**

Should be zero start, 0.5-12mph/0.8-19kmh

Self-calibrating

**Elevation Range**

Should be 0-21%

Self-calibrating

12. Self-aligning running belt
13. Exceptionally accurate, self-calibrating speed and elevation
14. 12 standards are simultaneously recorded for 10 seconds. Leads-I & II are digitized with 2 x 8000 samples / second for correct pacemaker detection while remaining leads a S/R of 2000 s/s.
15. Super twist LCD display with VGA resolution. PC-keyboard
16. Quality Certification : Valid CE/US FDA
17. Warranty 2 years & CMC 5 years.

**NOTE (for all the schedules above):**

- (1) Any reference to a specific brand / product, in case it occurs anywhere in the technical specification is purely for indicative/illustrative purposes and should be read as including its equivalent.
- (2) As part of the technical evaluation of bids, functional demonstration of offered equipment model may be called, but the result/outcome thereof shall not be taken as the sole or conclusive evidence of qualification of the bid. Further, all expenses and risks related to such demonstration shall be borne by the bidder.
- (3) Functional demonstration of the equipment is at the discretion of the Bid Evaluation Committee and its input shall be treated as supplementary / corroborative in nature and will not be a substitute for technical evaluation of the document submitted along with the bid.

## Special Terms and Conditions for Goods

GT&C 23	<p><b>Payment Terms</b></p> <p>The method and conditions of payment to be made to the Supplier (Payments will not be made to any other party) under this Contract, as applicable under (A) or (B), shall be as follows:</p> <p><b>(A) Payment for Goods supplied from outside India:</b></p> <p>Payment of foreign currency portion shall be made in the currency of the Contract Price in the following manner:</p> <ul style="list-style-type: none"><li>(i) <b>On Delivery to Consignee:</b> Eighty (80) percent of the Contract Price of the Goods delivered to the Consignee shall be paid within thirty (30) days of submission of documents specified in GT&amp;C 22 along with <b>Consignee Receipt Certificate (Form-I)</b>, by direct bank transfer to the Supplier's nominated bank account.</li><li>(ii) <b>On satisfactory installation, testing &amp; commissioning:</b> Twenty (20) percent of the Contract Price of Goods received shall be paid within thirty (30) days of satisfactory installation &amp; commissioning of the Goods and completion of training of the concerned personnel on operation and maintenance the equipment, upon submission of an invoice (indicating the United Nations Development Programme (UNDP) on behalf of West Bengal Medical Services Corporation Ltd., Govt. of West Bengal, the Purchase Order/Contract number, description of payment and total amount, signed in original, stamped or sealed with the company stamp/seal) supported by the <b>Satisfactory Installation, Training &amp; Commissioning Certificate(Form-II)</b> issued by the Consignee.</li></ul> <p>Payment of local currency portion shall be made in Indian Rupee within thirty (30) days of presentation of an invoice (indicating the United Nations Development Programme (UNDP) on behalf of West Bengal Medical Services Corporation Ltd., Govt. of West Bengal, the Purchase Order/Contract number, description of payment and total amount, signed in original, stamped or sealed with the company stamp/seal) supported by the satisfactory installation Certificate issued by the Consignee.</p> <p><b>(B) Payment for Goods and Services supplied from within India:</b></p> <p>Payment for Goods and Services supplied from within the country shall be made in Indian Rupee, as follows:</p> <ul style="list-style-type: none"><li>(i) <b>On Delivery to Consignee:</b> Eighty (80) percent of the Contract Price of the Goods delivered to the Consignee shall be paid within 30 days of submission of documents specified in GT&amp;C 22 along with <b>Consignee Receipt Certificate (Form-I)</b>, by direct bank transfer to the Supplier's nominated bank account.</li><li>(ii) <b>On satisfactory installation, testing &amp; commissioning:</b> Twenty (20) percent of the Contract Price of Goods received shall be paid within thirty (30) days of satisfactory installation &amp; commissioning of the Goods and completion of training of the concerned personnel on operation and maintenance the equipment, upon submission of an invoice (indicating the United Nations Development Programme (UNDP) on behalf of West Bengal Medical Services Corporation Ltd., Govt. of West Bengal, the Purchase Order/Contract number, description of payment and total amount, signed in original, stamped or sealed with the company stamp/seal) supported by the <b>Satisfactory Installation, Training &amp; Commissioning Certificate(Form -II)</b> issued by the Consignee.</li></ul> <p><b>Associated Civil Construction :</b> 100% on completion of associated civil work and on submission of a completion certificate duly signed by WBMSC or an authorized representative of WBMSC.</p>
---------	---



## Section 7: Price Schedule Form<sup>2</sup>

The Bidder is required to prepare the Price Schedule as indicated in the Instruction to Bidders. The Bidders are requested to provide the **cost of the goods (inclusive of all tax/duty, excluding entry tax)** for each Schedule quoted in the following format.

SCH. No. (a)	BRIEF DESCRIPTION OF GOODS (b)	QTY. (c)	MAKE/MODEL NO. & COUNTRY OF ORIGIN (d)	CURRENCY (e)	UNIT PRICE DDP (Incoterm 2010) FINAL DESTINATION (all inclusive) (f)	TOTAL PRICE DDP (Incoterm 2010) FINAL DESTINATION (all inclusive) (g) = (c) x (f)
<b>1</b>	<b>Cine Angiography Machine - Goods</b>	<b>1</b>				
	<b>Civil component</b>					
	CMC Charges for Year1 after completion of warranty	<b>1</b>				
	CMC Charges for Year2 after completion of warranty	<b>1</b>				
	CMC Charges for Year3 after completion of warranty	<b>1</b>				
	CMC Charges for Year4 after completion of warranty	<b>1</b>				
	CMC Charges for Year5 after completion of warranty	<b>1</b>				
<b>2</b>	<b>Echocardiography &amp; Colour Doppler Machine</b>	<b>1</b>				
	CMC Charges for Year1 after completion of warranty	<b>1</b>				
	CMC Charges for Year2 after completion of warranty	<b>1</b>				
	CMC Charges for Year3 after completion of warranty	<b>1</b>				
	CMC Charges for Year4 after completion of warranty	<b>1</b>				
	CMC Charges for Year5 after completion of warranty	<b>1</b>				
<b>3</b>	<b>Holter Monitoring System</b>	<b>1</b>				
	CMC Charges for Year1 after completion of warranty	<b>1</b>				
	CMC Charges for Year2 after completion of warranty	<b>1</b>				
	CMC Charges for Year3 after completion of warranty	<b>1</b>				
	CMC Charges for Year4 after completion of warranty	<b>1</b>				
	CMC Charges for Year5 after completion of warranty	<b>1</b>				

<sup>2</sup>No deletion or modification may be made in this form. Any such 1deletion or modification may lead to the rejection of the Bid.

<b>4</b>	<b>Ventilator (Digital)</b>	<b>1</b>				
	CMC Charges for Year1 after completion of warranty	<b>1</b>				
	CMC Charges for Year2 after completion of warranty	<b>1</b>				
	CMC Charges for Year3 after completion of warranty	<b>1</b>				
	CMC Charges for Year4 after completion of warranty	<b>1</b>				
	CMC Charges for Year5 after completion of warranty	<b>1</b>				
<b>5</b>	<b>TMT (Digital)</b>	<b>1</b>				
	CMC Charges for Year1 after completion of warranty	<b>1</b>				
	CMC Charges for Year2 after completion of warranty	<b>1</b>				
	CMC Charges for Year3 after completion of warranty	<b>1</b>				
	CMC Charges for Year4 after completion of warranty	<b>1</b>				
	CMC Charges for Year5 after completion of warranty	<b>1</b>				

\* DDP Price final destination shall include all the cost incidental to delivery at final destination including all duties & taxes to be paid.

\* DDP Price of the above equipment shall include Supply and Installation, Commissioning and warranty for Equipment.

\*\* There shall be no exemption from any applicable tax or duty;

\*\*\* Entry tax @ 1% of cost of goods is applicable which will be reimbursed.

**NOTE :**

- 1) The price quoted in one schedule should be in one currency only.
- 2) If CMC column is left blank, then it will be assumed that the CMC is free of cost.

**BIDDER'S DISCOUNT FOR ACCELERATED PAYMENT**

\_\_\_\_% of total firm price for each calendar day less than thirty (30) days

**BIDDER'S SIGNATURE AND CONFIRMATION OF THE ITB**

PROVIDED THAT A PURCHASE ORDER IS ISSUED BY UNDP **WITHIN THE REQUIRED BID VALIDITY PERIOD** , THE UNDERSIGNED HEREBY COMMITS, SUBJECT TO THE TERMS OF SUCH PURCHASE ORDER, TO FURNISH ANY OR ALL ITEMS AT THE PRICES OFFERED AND TO DELIVER SAME TO THE DESIGNATED POINT(S) WITHIN THE DELIVERY TIME STATED IN SCHEDULE OF REQUIREMENT.

*Exact name and address of company*

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_  
\_\_\_\_\_

PHONE NO. \_\_\_\_\_ FAX NO. \_\_\_\_\_

EMAIL ADDRESS OF CONTACT PERSON \_\_\_\_\_

OTHER EMAIL ADDRESSES \_\_\_\_\_

\_\_\_\_\_  
**AUTHORIZED SIGNATURE**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
NAME OF AUTHORIZED SIGNATORY (TYPE OR PRINT)

\_\_\_\_\_  
FUNCTIONAL TITLE OF SIGNATORY

**WEB SITE** \_\_\_\_\_